




Water Study

PRELIMINARY WATER BASIS OF DESIGN REPORT

Scottsdale Residences

69th Street and E. Main Street
Scottsdale, AZ 85251

PRELIMINARY Basis of
Design Report
☒ ACCEPTED
☐ ACCEPTED AS NOTED
☐ REVISE AND RESUBMIT

Reviewed by

On behalf of the Scottsdale
Water Resources Planning
and Engineering Department

DISCLAIMER: If accepted, the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (Typically during the DR and PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission. For questions and clarifications contact the Water Resources Planning and Engineering Department at 480-321-5685

REVIEWER: Jon Chill
EMAIL: Jchill@carollo.com

DATE
8/5/2019

Prepared For:



Prepared by:



Sustainability Engineering Group

8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 181205

Date: March 15, 2019 (Zoning)

Date: June 25, 2019 (Zoning)

Case No.: 21-ZN-2016#2

Plan Check No.: TBD

Address comments below and others throughout report:

1) Pressures in the City's water system comply with the required pressures. However, the pressures at the highest finished floor do not meet the requirements per DS&PM 6-1.406.C. Verify if building needs an onsite booster with the Building Department.

2) A 3" meter requires a vault per City Detail 2345, note vault on plans.

3) Remove unused appurtenances and meters per DS&PM 6-1.408.

4) Fire flow justification is discussed, provide justification (appendix referenced was not included). Provide appendix for DR submittal.

5) Pipe and node names from model results provided do not match model diagram provided. Provide model results and diagram that are consistent and match the proposed system. This must be updated for the DR submittal.

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1. INTRODUCTION

1.1 SUMMARY OF PROPOSED DEVELOPMENT:

The report presents the service requirements for Scottsdale Residences located at the southeast corner of 69th Street and Main Street in Scottsdale, AZ. The proposed development consists of a new 4-story condominium building of 121 units with underground parking and a pool proposed on the second floor. The purpose of this report is to provide an analysis of the impact that this development will have on the city's wastewater system.

1.2 LEGAL DESCRIPTION:

The project property consists of multiple parcels of land located at a portion of the Northeast ¼ of Section 24, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona. The project site consists of the following parcels:

Parcel ID:	Parcel 130-11-011; Premium Administration, Zoning D/DMU-2 DO
	Parcel 130-11-010; Premium Administration, Zoning D/DMU-2 DO
	Parcel 130-11-009; Undeveloped, Zoning D/DMU-2 DO
	Parcel 130-11-008; Undeveloped, Zoning D/DMU-2 DO
	Parcel 130-11-007; Perfecta L.M.T, Zoning D/DMU-2 DO
	Parcel 130-11-006; Perfecta L.M.T, Zoning D/DMU-2 DO
	Parcel 130-11-005; Perfecta L.M.T, Zoning D/DMU-2 DO
	Parcel 130-11-004; Perfecta L.M.T, Zoning D/DMU-2 DO
	Parcel 130-11-003; Perfecta L.M.T, Zoning D/DMU-2 DO

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

1.3 EXISTING AND PROPOSED SITE ZONING AND LAND USES:

The project area includes approximately 55,408. ft. (1.27 acres) of land designated as D/DMU-2 per COS Zoning Map 19. The existing site consist of two commercial developments and an undeveloped parcel. East of those developments is a commercial development under C-2 zoning. East of the proposed development is a residential development zoned as D/DMU-2. North and of the site there are various commercial developments zoned as C-2.

2. DESIGN DOCUMENTATION

2.1. DESIGN COMPLIANCE:

The proposed water system is designed to meet the criteria of the City of Scottsdale ("the City") Water Resources Department, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

2.2. PROCEDURES, POLICIES AND METHODOLOGIES:

The general methodology used to design this public water infrastructure consists of modeling a network of water distribution mains to meet the City's pressure, head loss, and water demand requirements during daily demands and fire events. The connection to the water system is modeled

as a reservoir and pump. The pump will simulate the pressure drop and the available flow from the existing water system as depicted by the fire flow test. Refer to **APPENDIX I** for a copy of the fire flow test results.

2.3 SOFTWARE ACKNOWLEDGEMENT:

Bentley WaterCAD® Version 8i is the computer modeling tool used in this water study.

3. EXISTING CONDITIONS

3.1 EXISTING ZONING & LAND USE:

Land ownership includes 1.27 +/- acres of gross area per site over eight (8) parcels of developed land and one (1) parcels of undeveloped land zoned D/DMU-2.

3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The site is currently developed includes two commercial developments with parking lots: Premium Administration and Perfecta L.M.T. The two developments are separated by two undeveloped parcels consisting mostly of a dirt surface.

Per Topographic Survey prepared by Survey Innovation Group Inc., the site slopes from north to south at approximately 0.50%. Elevation varies from approximately 1264.38 at the northwest corner to approximately 1262.12 at the southeast corner.

FIRM Map Number 04013C2235L dated October 16, 2013 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

3.3 EXISTING WATER MAIN:

Water: City of Scottsdale (QS 16-44)

- An existing 12" DIP west of the site along the center line of 69th Street and an 8" water line running along the east curb on 69th Street.
- A 4" DIP water line runs south of the site, from east to west, throughout the entirety of a 14' wide alley. The 4" DIP line from the 8" water line along to 69th Street to an 8" DIP water line running north to south along Goldwater Boulevard.
- A 6" CIP main is located adjacent to the north property line parallel to Main Street and runs about half the length of the property frontage.
- Hydrants exist at the north frontage of the site along Main Street and at the southwest corner of 69th Street and Main Street.
- Existing service / water meters for the site come from the Scottsdale Road Main

Refer to **FIGURE 4** for COS existing QS 15-44 water locations.

3.4 CERTIFIED FLOW TEST RESULTS OF EXISTING WATER SYSTEM:

Certified fire hydrant flow testing was performed on December 6, 2018 by Arizona Flow Testing LLC at 7:40 a.m. The fire flow test recorded a static pressure of 80 psi and residual pressure of 70 psi at 1,550 gpm. The actual flow test documentation is included in the **APPENDIX I**.

4. PROPOSED CONDITIONS

4.1 SITE PLAN:

Proposed development consists of a new 4-story condominium. The development will include five proposed access doors to the first-floor ground parking and one ramp access to an underground parking garage on the south side of the building.

4.2 PROPOSED WATER SYSTEM:

The existing 6" CIP waterline running along the north property boundary to remain in place. Domestic service will consist of a 3" service connection provided off the existing 6" CIP line at the northwest corner of the site. A 1" irrigation service will also be provided from the same 6" CIP line.

A new 8" DIP water main is proposed to run parallel and north of the existing 6" CIP line. The proposed 8" line will connect to the existing 8" water line located west of the site and runs along 69th Street, and will loop to the existing 8" DIP line located east of the site, that runs along Goldwater Boulevard. A 6" DIP line fire line will connect to the new 8" water main at the northeast corner of the site. No new fire hydrants are proposed, the existing fire hydrant at the north of the site is to remain in place.

4.3 SECOND SOURCE:

See 4.2. No additional source of water is anticipated for this project.

4.4 WATER REQUIREMENTS:

The required fire flow was determined per the International Building Code, Fire Flow Calculation Table B105.1 (2) and Table B05.2. Per table B05.2 the minimum required fire flow for R-5 buildings is 25% the value in Table 105.1(2). Considering that the total gross floor area for the building is 205,214 sf, with material type V-B, the required fire flow is 8,000 gpm. With the 75% credit for the sprinklered structures, the calculated fire flow required is the following:

Fire Flow Required = 8,000 gpm * 0.25 = 2,000 gpm.

Refer to the **Appendix IV** for IBC Reference Tables.

4.5 MAINTENANCE RESPONSIBILITIES:

The on-site water main for the proposed development will be public and located within easements to the City of Scottsdale. Therefore, the on-site and off-site water system will be maintained by the City.

5. WATER SYSTEM COMPUTATIONS

5.1 WATER DEMANDS:

The proposed development at the site consists of residential (apartment) uses and a clubhouse with units as shown in Table 1 below. Average day water demands are described in Section 6-1.205, Figure 6.1-2 of the City of Scottsdale's Design Standards & Policies Manual ("DS&PM"), dated January 2010. A summary of the total water demands for the site are presented below in Table 1.

<i>Table 1 - Water Demand Calculations - Proposed Conditions</i>							
Land Use	Units	Demand	Average Day Demand	Max Day Peaking	Peak Hour Peaking	Max. Day Demand	Peak Hour
		(GPM/Unit)	(GPM)	Factor	Factor	(GPM)	(GPM)
Condominium	121	0.27	33	2	3.5	66	114

5.2 SOFTWARE MODELING:

Bentley WaterCAD Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

1. Pipe diameters (feet)
2. Pipe lengths (feet)
3. Pipes invert elevations (feet)
4. Pressure 1 at the intersection to model the fire flow test performed
5. System demands (gpm)
6. Fire flow (gpm)
7. Model piping is ductile iron pipe using Hazen-Williams frictional losses (C = 130)

Output parameters included but were not limited to:

1. Pressure (psi)
2. Flow rates (gpm)
3. Velocities (fps)

5.3 MINIMUM PRESSURE REQUIREMENTS:

The following system pressure requirements are in accordance with the City's design standards:

- Average day, maximum day and peak hour flow demands:
 - Minimum pressure = 50 psi
 - At the highest finished floor level to be served by the system pressure during normal daily operating conditions.
 - Maximum pressure = 120 psi
- Maximum day plus coincident fire flow demand:
 - Minimum pressure = 30 psi
 - At the highest ceiling level to be served by the system pressure during normal daily operating conditions.

➤ Maximum pressure = 120 psi

- Daily scenario head loss shall not exceed 10 feet per 1,000 feet length of pipe.

Refer to APPENDIX II for computer modeling results.

5.4 WATER SYSTEM ANALYSIS:

The proposed water system was analyzed under 5 scenarios: initial service design flow, average day demand, maximum day demand, peak hour demand, and fire flow demand.

The initial service design flow scenario was analyzed through the following assumptions:

- The pressure loss between meter and backflow preventer is approximately 7.5 psi.
- The highest unit fixture is located 40 feet above finish ground elevation; the resulting static loss is 17.3 psi.
- Based on the performed fire hydrant flow test, the provided pressure at the service connection is assumed to be 72 psi.

$$\begin{aligned} \text{Provided domestic service pressure} &= \text{Initial pressure} - \text{total pressure loss} \\ &= 72 \text{ psi} - (17.3 \text{ psi} + 7.5 \text{ psi}) \\ &= 47.2 \text{ psi} \end{aligned}$$

The provided domestic pressure at the highest point of the proposed development is 47.2 psi.

Average day, maximum day, peak hour and fire flow scenarios were analyzed through the use of a WaterCAD model. The fire flow scenario was modeled as the max day demand plus the required fire flow demand for a high-rise structure: 2,000 gpm. A summary of the modeling results is presented below in Table 2. Detailed WaterCAD® results are presented in APPENDIX II.

Table 2 - FlowMaster Analysis Results

Demand Scenario	Water Demand	Pressure	Velocity
	(GPM)	(psi)	(ft/s)
Average Day Demand	33	73	0.21
Maximum Day	66	73	0.41
Peak Hour	114	73	0.73
Fire Flow (2,000 + Max Day)	2,066	43	13.18

These results indicate that the proposed water system follows the City's criteria for daily water usage and fire flow events. The proposed system maintains adequate pressure throughout the proposed scenarios. Although the minimum provided pressure under fire flow conditions is 73 psi; which meets the minimum 30 psi requirement. Maximum of 10 fps velocity is required under city of Scottsdale's design standards and policies. The proposed system maintains a maximum velocity far below the

This is residual pressure at the connection, need to reduce ~25 psi to account for highest finished floor = 18 psi (min requirement is 15 psi per DS&PM 6-1.406.C), Building may need a booster pump to maintain pressure requirement.

How is the pressure in the table below higher than the 72 psi shown here and by the hydrant test?

this is less than 50 psi as required by DS&PM 6-1.406, building may need a booster pump.

FlowMaster or WaterCAD? If FlowMaster was also used provide results in Appendix II

43 psi for fire flow

city's requirement for average day, maximum day, and peak hour scenarios. Under the fire flow conditions, the system slightly exceeds the maximum requirement by 3.18 fps.

6. SUMMARY

6.1 SUMMARY OF PROPOSED WATER IMPROVEMENTS:

- The proposed water main is designed in accordance with City of Scottsdale's design standards and policies².
 - Minimum 50 psi @ peak hour required, 75 psi provided.
 - Minimum 30 psi @ fire flow required, 43 psi provided.
 - 10 fps maximum velocity is exceeded under fire flow conditions by 3 fps.
 - The system supports the minimum 2000 gpm fire flow requirements.
- The results shown in the modeling summary (refer to Section 5.4) indicate that the proposed water system meets the City's criteria for Daily water usage and fire flow events as described in Section 5.3.
- PRV's may be required based on water system analysis showing that pressures are exceeding 80 psi for the average demand.

73 psi per previous table and results in Appendix II

6.2 PROJECT SCHEDULE:

As a commercial condominium development the infrastructure and building are proposed to be constructed in a single phase.

7 SUPPORTING MAPS

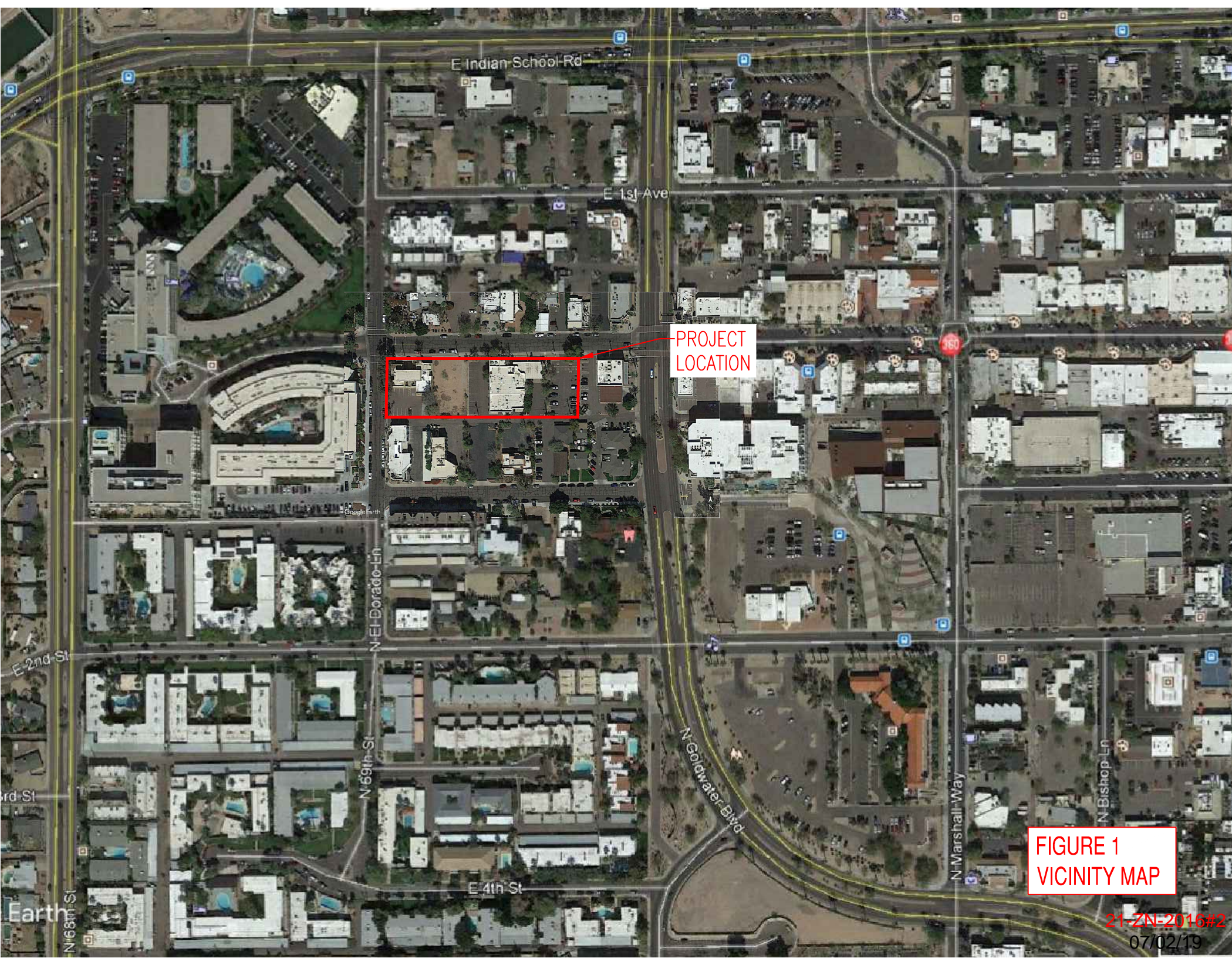
7.1 SITE UTILITY PLAN

Refer to Preliminary Utility Plan in **APPENDIX III**.

since this is a multi-story building, provide pressures at highest finished floor as well

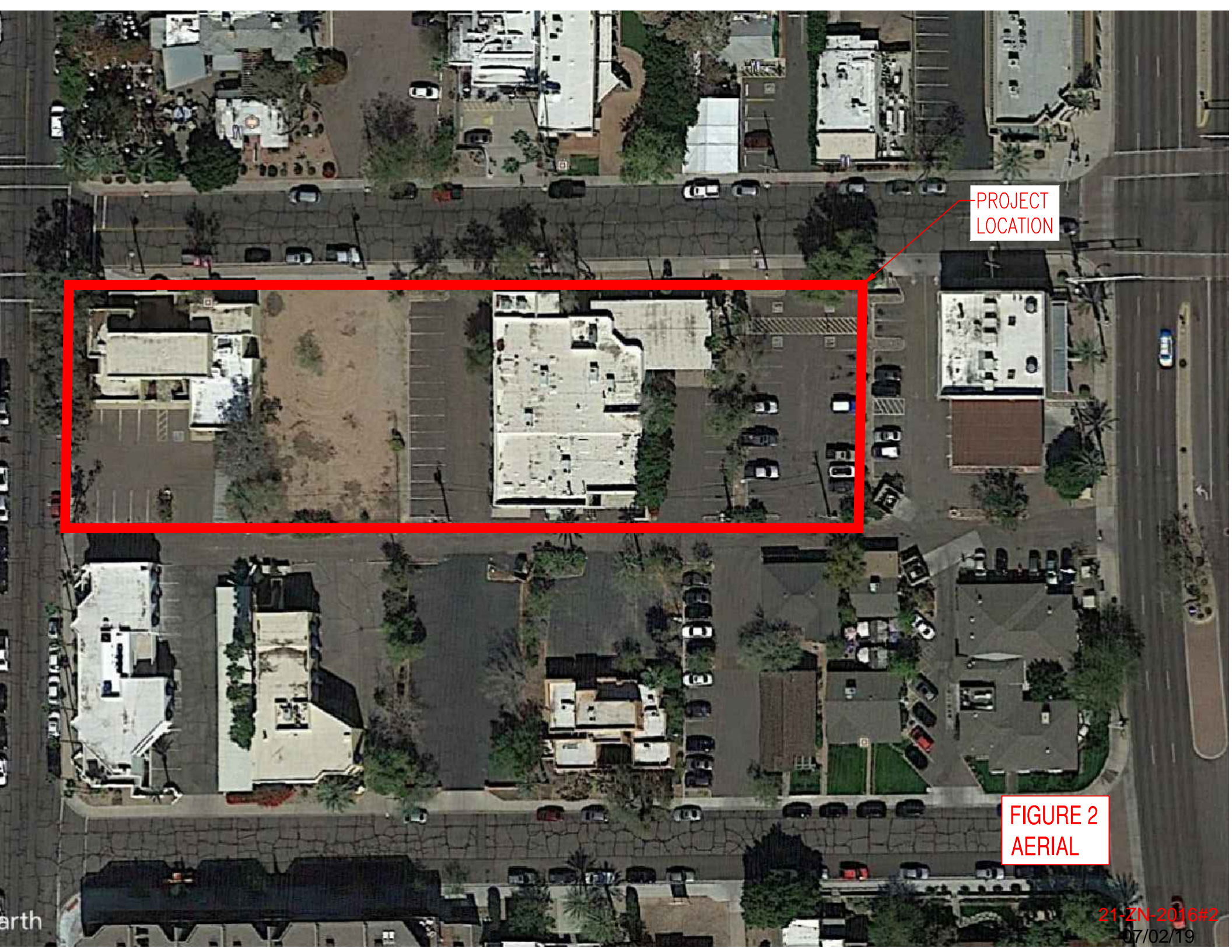
8 REFERENCES

1. *COS QS Water Plan number 15-44*
2. *City of Scottsdale Design Standards & Policies Manual, 2010 (Chapter 6 – Water)*



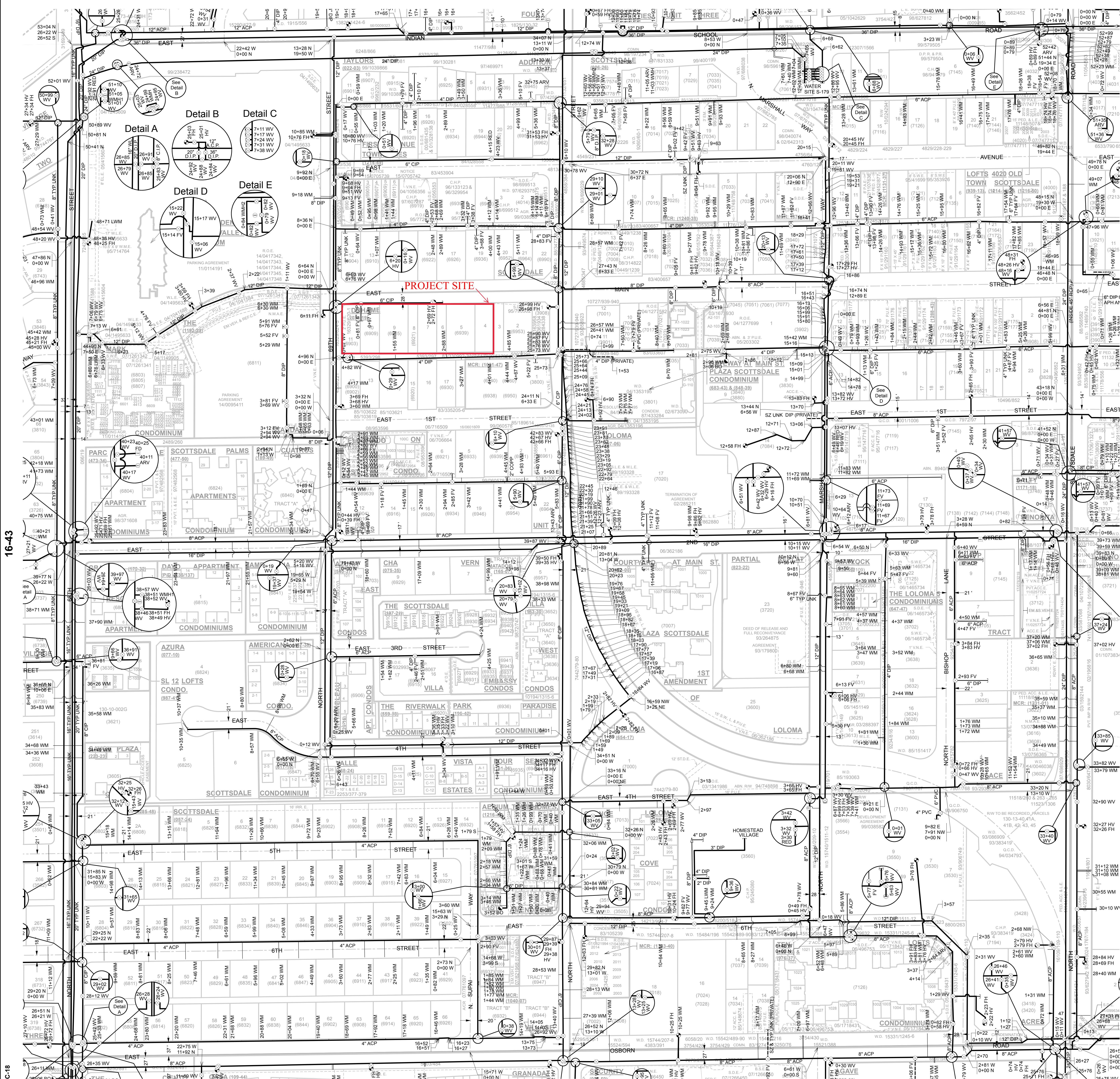
PROJECT
LOCATION

FIGURE 1
VICINITY MAP



PROJECT
LOCATION

FIGURE 2
AERIAL

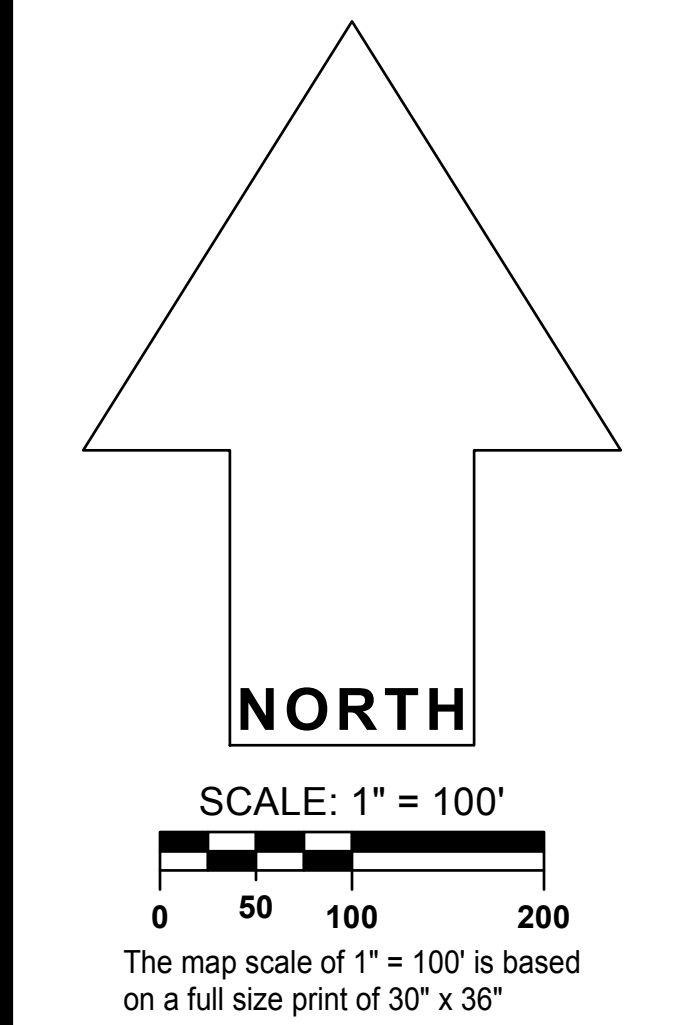
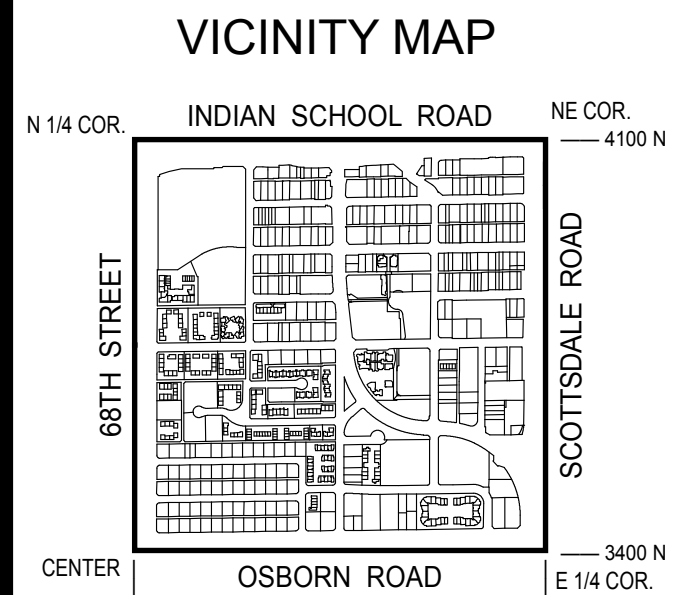


GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER, 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS "CALCULATED" ON THE MAP.

LEGEND:

- Air Release Valve
- Non-potable Air Release Valve
- Blowoff
- Cap
- Cathodic Protection
- Fill Drain
- Fire Hydrant
- Non-GPS Point
- Pressure Reducing Valve
- Pump
- Reducer
- Sample Station
- Water Manhole
- Non-Potable Manhole
- Well
- Valve
- Non-potable Valve
- Vault
- Water Main
- Non-Potable Main
- Fire / Private Main
- Non-Scottsdale Main



WATER

QUARTER SECTION MAP

16-44

NE 1/4 SEC. 27 T2N R4E

FIGURE 3

APPENDIX I

Flow Test Data

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name: Fleetwood 6
Project Address: 69th Street & 1st Avenue, Scottsdale, Arizona, 85251
Client Project No.: Not Provided
Arizona Flow Testing Project No.: 18429
Flow Test Permit No.: C56826
Date and time flow test conducted: December 6, 2018 at 7:40 AM
Data is current and reliable until: June 6, 2019
Conducted by: Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by: Ray Padilla – City of Scottsdale-Inspector (602-541-0586)

Raw Test Data

Static Pressure: **80.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **70.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **17.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches)

Coefficient of Diffuser: .7875

Flowing GPM: **1,550 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **4,079 GPM**

Data with 10% Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **62.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 560 Feet

Main size: Not Provided

Flowing GPM: **1,550 GPM**

GPM @ 20 PSI: **3,776 GPM**

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Flow Test Location

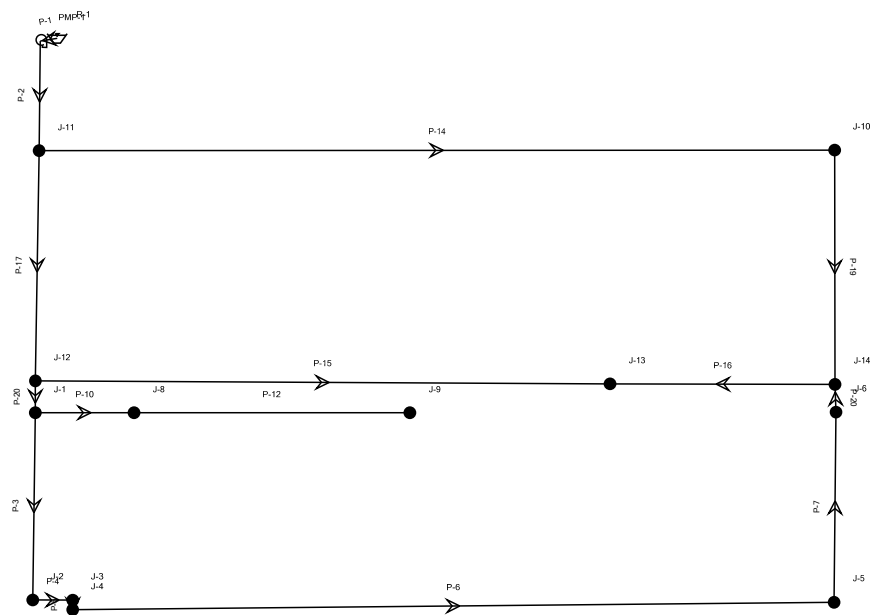
North ↑



APPENDIX II

Water Model Results

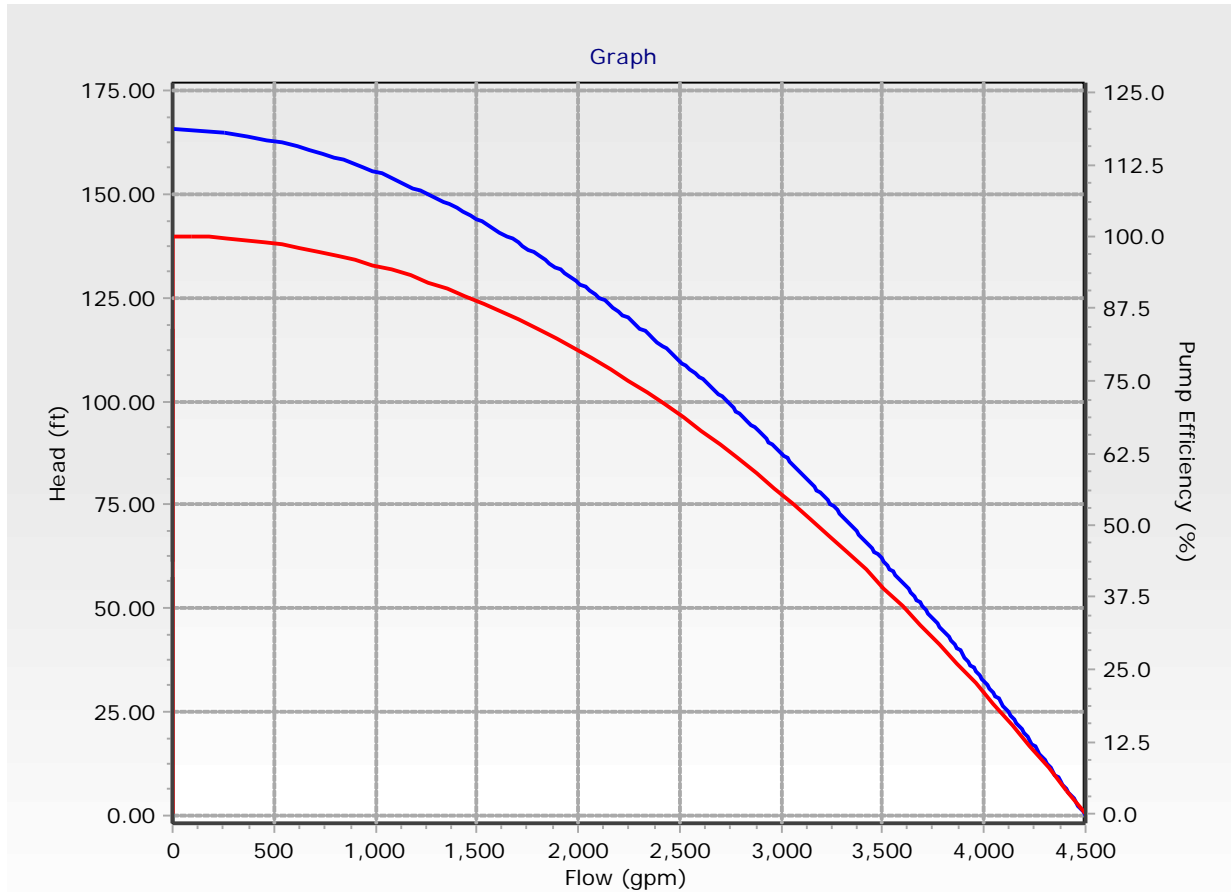
Scenario: Fire Flow Demand



Pump Definition Detailed Report: Pump Curve

Element Details			
ID	33	Notes	
Label	Pump Curve		
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	142.60 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	3,776 gpm
Shutoff Head	165.60 ft	Maximum Operating Head	46.00 ft
Design Flow	1,550 gpm		
Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0 gpm		
Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Pump Curve



Scenario: Average Day Demand				
Flex Table: Junction Table				
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,261.19	0	1,431.17	74
J-4	1,260.57	0	1,431.17	74
J-5	1,261.00	0	1,431.17	74
J-6	1,261.00	0	1,431.17	74
J-7	1,258.17	0	1,431.17	75
J-8	1,259.22	0	1,431.17	74
J-10	1,260.67	0	1,431.17	74
J-1	1,261.48	0	1,431.18	73
J-2	1,261.23	0	1,431.17	74
J-13	1,259.70	0	1,431.17	74
J-9	1,259.35	0	1,431.17	74
J-11	1,259.79	33	1,431.17	74
J-12	1,259.23	0	1,431.17	74

Labels do not match network diagram provided on page 14 (first page of Appendix II) - must be updated for DR

How are these over 72psi when the pump has a max of 72 psi?

Scenario: Average Day Demand							
Flex Table: Pipe Table							
Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (GPM)	Velocity (ft/s)
P-1	13	R-1	PMP-1	24	130	33	0.02
P-5	140	J-3	J-4	8	130	2	0.01
P-6	30	J-4	J-5	4	130	2	0.04
P-7	7	J-5	J-6	4	130	2	0.04
P-8	569	J-6	J-7	4	130	2	0.04
P-9	142	J-7	J-8	8	130	2	0.01
P-2	82	PMP-1	J-1	8	130	33	0.21
P-12	595	J-10	J-1	4	130	-3	0.08
P-3	172	J-1	J-2	8	130	30	0.19
P-4	24	J-2	J-3	8	130	2	0.01
P-10	21	J-8	J-9	8	130	2	0.01
P-11	175	J-9	J-10	8	130	-3	0.02
P-16	168	J-13	J-9	8	130	-5	0.03
P-13	111	J-2	J-11	8	130	28	0.18
P-14	147	J-11	J-12	8	130	-5	0.03
P-15	172	J-12	J-13	8	130	-5	0.03

Scenario: Max Day Demand				
Flex Table: Junction Table				
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,261.19	0	1,431.11	74
J-4	1,260.57	0	1,431.11	74
J-5	1,261.00	0	1,431.11	74
J-6	1,261.00	0	1,431.11	74
J-7	1,258.17	0	1,431.10	75
J-8	1,259.22	0	1,431.10	74
J-10	1,260.67	0	1,431.10	74
J-1	1,261.48	0	1,431.13	73
J-2	1,261.23	0	1,431.11	74
J-13	1,259.70	0	1,431.10	74
J-9	1,259.35	0	1,431.10	74
J-11	1,259.79	65	1,431.10	74
J-12	1,259.23	0	1,431.10	74

Labels do not match network diagram provided on page 14 (first page of Appendix II) - must be updated for DR

How are these over 72psi when the pump has a max of 72 psi?

Scenario: Max Day Demand							
Flex Table: Pipe Table							
Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (GPM)	Velocity (ft/s)
P-1	13	R-1	PMP-1	24	130	65	0.05
P-5	140	J-3	J-4	8	130	3	0.02
P-6	30	J-4	J-5	4	130	3	0.08
P-7	7	J-5	J-6	4	130	3	0.08
P-8	569	J-6	J-7	4	130	3	0.08
P-9	142	J-7	J-8	8	130	3	0.02
P-2	82	PMP-1	J-1	8	130	65	0.41
P-12	595	J-10	J-1	4	130	-6	0.15
P-3	172	J-1	J-2	8	130	59	0.38
P-4	24	J-2	J-3	8	130	3	0.02
P-10	21	J-8	J-9	8	130	3	0.02
P-11	175	J-9	J-10	8	130	-6	0.04
P-16	168	J-13	J-9	8	130	-9	0.06
P-13	111	J-2	J-11	8	130	56	0.36
P-14	147	J-11	J-12	8	130	-9	0.06
P-15	172	J-12	J-13	8	130	-9	0.06

Scenario: Peak Hour Demand				
Flex Table: Junction Table				
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,261.19	0	1,430.94	73
J-4	1,260.57	0	1,430.94	74
J-5	1,261.00	0	1,430.94	74
J-6	1,261.00	0	1,430.94	74
J-7	1,258.17	0	1,430.92	75
J-8	1,259.22	0	1,430.92	74
J-10	1,260.67	0	1,430.92	74
J-1	1,261.48	0	1,430.99	73
J-2	1,261.23	0	1,430.94	73
J-13	1,259.70	0	1,430.92	74
J-9	1,259.35	0	1,430.92	74
J-11	1,259.79	114	1,430.92	74
J-12	1,259.23	0	1,430.92	74

Labels do not match network diagram provided on page 14 (first page of Appendix II) - must be updated for DR

How are these over 72psi when the pump has a max of 72 psi?

Scenario: Peak Hour Demand							
Flex Table: Pipe Table							
Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (GPM)	Velocity (ft/s)
P-1	13	R-1	PMP-1	24	130	114	0.08
P-5	140	J-3	J-4	8	130	6	0.04
P-6	30	J-4	J-5	4	130	6	0.15
P-7	7	J-5	J-6	4	130	6	0.15
P-8	569	J-6	J-7	4	130	6	0.15
P-9	142	J-7	J-8	8	130	6	0.04
P-2	82	PMP-1	J-1	8	130	114	0.73
P-12	595	J-10	J-1	4	130	-11	0.27
P-3	172	J-1	J-2	8	130	103	0.66
P-4	24	J-2	J-3	8	130	6	0.04
P-10	21	J-8	J-9	8	130	6	0.04
P-11	175	J-9	J-10	8	130	-11	0.07
P-16	168	J-13	J-9	8	130	-16	0.1
P-13	111	J-2	J-11	8	130	98	0.62
P-14	147	J-11	J-12	8	130	-16	0.1
P-15	172	J-12	J-13	8	130	-16	0.1

Scenario: Max Day+ Fire Flow Demand				
Flex Table: Junction Table				
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-3	1,261.19	0	1,376.92	50
J-4	1,260.57	0	1,376.79	50
J-5	1,261.00	0	1,375.96	50
J-6	1,261.00	0	1,375.77	50
J-7	1,258.17	0	1,360.05	44
J-8	1,259.22	0	1,359.91	44
J-10	1,260.67	0	1,360.16	43
J-1	1,261.48	0	1,386.33	54
J-2	1,261.23	0	1,376.94	50
J-13	1,259.70	2,000	1,359.16	43
J-9	1,259.35	0	1,359.89	44
J-11	1,259.79	65	1,372.09	49
J-12	1,259.23	0	1,366.15	46

Labels do not match network diagram provided on page 14 (first page of Appendix II) - must be updated for DR

Scenario: Max Day+ Fire Flow Demand							
Flex Table: Pipe Table							
Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (GPM)	Velocity (ft/s)
P-1	13	R-1	PMP-1	24	130	2,065	1.46
P-5	140	J-3	J-4	8	130	202	1.29
P-6	30	J-4	J-5	4	130	202	5.15
P-7	7	J-5	J-6	4	130	202	5.15
P-8	569	J-6	J-7	4	130	202	5.15
P-9	142	J-7	J-8	8	130	202	1.29
P-2	82	PMP-1	J-1	8	130	2,065	13.18
P-12	595	J-10	J-1	4	130	-260	6.63
P-3	172	J-1	J-2	8	130	1,805	11.52
P-4	24	J-2	J-3	8	130	202	1.29
P-10	21	J-8	J-9	8	130	202	1.29
P-11	175	J-9	J-10	8	130	-260	1.66
P-16	168	J-13	J-9	8	130	-462	2.95
P-13	111	J-2	J-11	8	130	1,603	10.23
P-14	147	J-11	J-12	8	130	1,538	9.82
P-15	172	J-12	J-13	8	130	1,538	9.82

APPENDIX III

Water Utility Plans

CIVIL ENGINEER:

SEG
8280 E. GELDING DR, SUITE #101
SCOTTSDALE, AZ 85260
480-588-7226
ATTN: ALI FAKIH

DEVELOPER:

CCBG ARCHITECTS, INC
102 EAST BUCHANAN ST.
PHOENIX, AZ 85004
602-663-3095
ATTN: PAUL LADENSACK

OWNER:

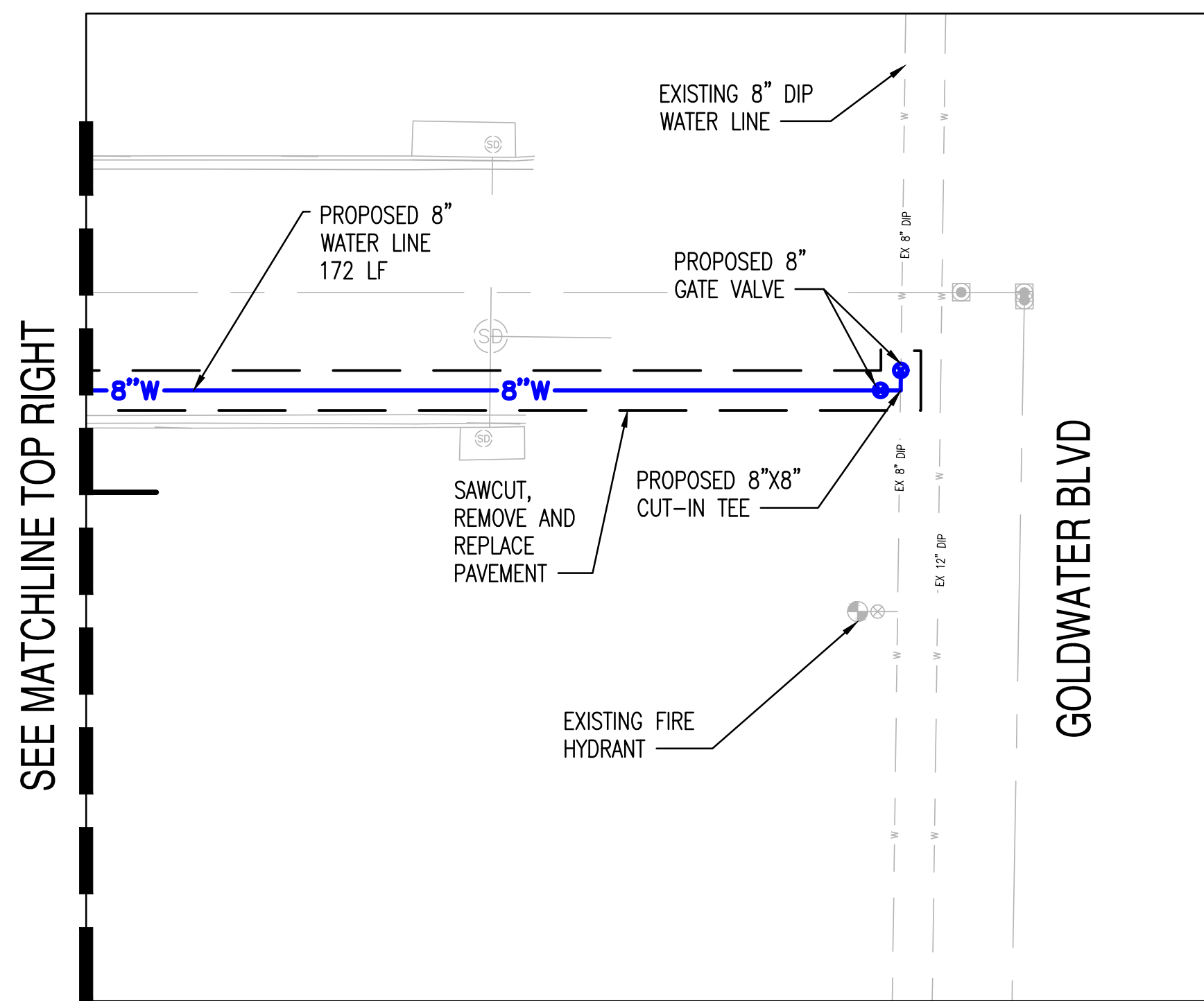
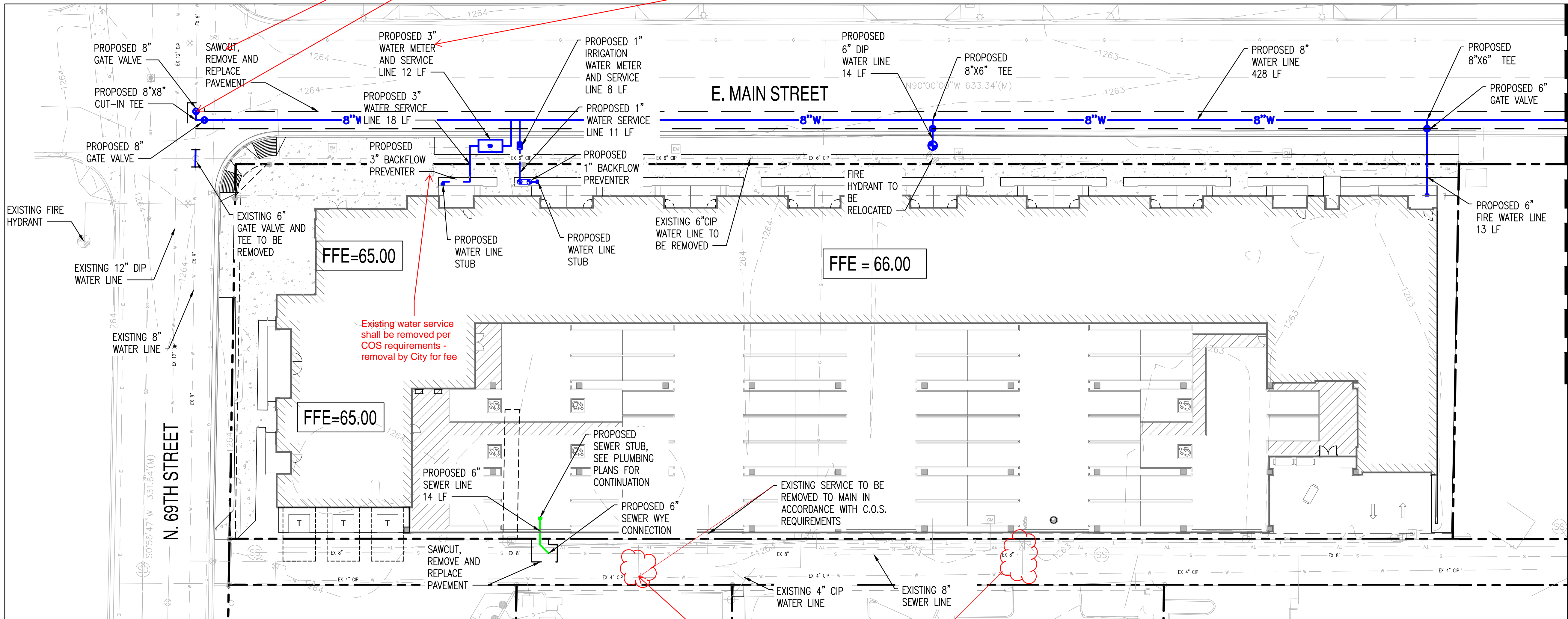
MAIN STREET SCOTTSDALE, LLLP
1401 17TH STREET, SUITE 700
DENVER, CO 80202

MAIN STREET AND
69TH STREET
PRELIMINARY UTILITY PLAN

Note that pavement moratorium is in effect through 2022 since pavement was serviced 9/1/2018. Street cut surcharge will be assessed per City fee sheet for pavement cuts during moratorium.

based on model assumptions this valve should go on the south leg of tee - the open side shall be on the primary supply side

3" meter requires a vault per City Detail 2345



Existing water service shall be removed per COS requirements - removal by City for fee

Only water comments shown here, see sewer comments on sewer BOD

LEGEND

- PROPERTY LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE (6" W)
- EXISTING SEWER LINE
- PROPOSED SEWER LINE (6" S)
- SAWCUT
- EXISTING FIRE HYDRANT
- EXISTING SEWER MANHOLE
- EXISTING SEWER CLEANOUT
- WATER METER
- BACKFLOW PREVENTER
- WATER VALVE

NOTES:

- ALL PROPOSED UTILITIES WILL BE UNDERGROUND LOG AND WITHIN PROJECT BOUNDARIES, IN ACCORDANCE WITH SRC 47-80.
- PAVEMENT MORATORIUM IS IN EFFECT THROUGH 2022 IN MAIN STREET. CUT SURCHARGE FEES WILL BE ASSESSED DURING THE MORATORIUM.



SCALE: 1" = 20'



PRELIMINARY
NOT FOR
CONSTRUCTION

SEG



8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480.588.7226

PROJECT
SCOTTSDALE RESIDENCES

LOCATION
69TH STREET AND E. MAIN STREET,
SCOTTSDALE, AZ

DRAWN: AVINA
DESIGNED: AVINA
CHECKED: AVINA
PROJ. MGR.: FAKIH

DATE: 06/25/2019

ISSUED FOR: PRELIMINARY
DESIGN

REVISION NO.: DATE:

1	
2	
3	
4	

JOB NO.: 181205

SHEET TITLE:

PRELIMINARY UTILITY
PLAN

SHEET NO.: C4.00

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